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A Treatment for Tuberculosis in Cattle that has given Interesting Results.*

By A. SPICER, F.R.C.V.S., New Oxted.

Mr. President and Gentlemen,—My reasons for reading this paper to you to-night are two-fold. Firstly, because it is the duty of every veterinary surgeon to read a paper before a Veterinary Association at some period of his career and, secondly, because I hope it may prove to be one point scored by the Veterinary Profession in our fight against tuberculosis.

Tuberculosis is a subject that has interested me from the time I left college, and I have followed the treatment of that disease with tuberculin whenever any literature on the subject came to hand. The amount of work done in the past with that agent has been enormous and there are about twenty different sorts of tuberculin described in Calmette's book. It has been tried as a cure for tuberculosis in every possible way, sometimes, from what one reads, giving very flattering results, always, however, failing in the end—at least it would appear so, as the search for a cure still goes on.

On thinking the treatment out there would seem to be two weak spots: the first one being the question as to why the patient does not cure himself, as he is always manufacturing tuberculin in his own system, and the second one the fact that the greatest exponents of the treatment would not rely on tuberculin alone; they always required special feeding, rest, medicine and, for preference, two or three months in a sanatorium. No treatment has been given.

Thinking this question over one night, it occurred to me that something might be done if the tuberculin could be arrested for a short time at the seat of inoculation and was not carried direct into the general circulation. How was this to be accomplished? Of course, the only way was to mix it with adrenalin.

This idea occurred to me about the end of 1916, but it seemed so far fetched that nothing was done with it until the middle of 1917, when a few injections were given to reacting cows to get some idea of what happened, but with no apparent results.

As, however, the conviction remained that there might be something in it, a course of treatment was started on any available case when permission to do so could be obtained from the owner.

The best plan will be to run through the cases and follow the treatment as it developed and, to enable those who are interested to follow more easily, I have had a summary of the nineteen cases stencilled off. [This summary appears at the end of the paper.—Ed.].

Case No. 1 was a mixed case of Johnë's disease and tuberculosis and gave no definite results, for, as soon as the cow was in fair condition, she was sold to the butcher.

I may say here that the combination was tried on cases of Johnë's disease with what led to disastrous results in cases Nos. 2 and 5, for in this disease one can give big doses without any ill effect and it made one careless as to the dosage in cases of tuberculosis.

Case No. 2 gave a very satisfactory result with the first injection but the dose was repeated much too soon and in too large a quantity and there is no doubt that the treatment killed the cow. On *post-mortem* she proved to be a bad case of tuberculosis.

Case No. 3 was most satisfactory as far as it went, but she was sold at the sale and could not be tested again.

Case No. 4.—This cow was under treatment for a long time but unfortunately no information was obtained from her as she had a ruptured diaphragm and a portion of the bowel had escaped into the thoracic cavity. The lesions in this cow were not serious.

Case No. 5 was similar to case 2. She was showing distinct improvement after the second injection, but the third injection was repeated too soon and the dose was too large. There is no doubt that it caused her death.

Case No. 6 gave most encouraging results and appeared to make a complete recovery up to July 21st, 1920, and will be referred to again.

Case No. 7 was another successful one. She was treated with case 8 simply as a reactor and has apparently made a complete and permanent cure.

Case No. 8 gave very interesting results. She was in the same herd as case 7. The first two injections appeared to ward off an acute attack of tubercular pneumonia. She was tested with the herd, gave a definite reaction, and received treatment with case 7 as a reactor on the dates given; tested again in July she gave a very doubtful reaction; by September 17th had lost a good deal of flesh, appearing to be a bad case of tuberculosis. She improved steadily under treatment, which was continued to April 11th, 1921, and took second prize at Oxted Show in July. On September 2nd, she was supposed to have caught a chill and was killed on November 5th, *post-mortem* showing that she was a very bad case of tuberculosis.

* Paper presented to the Central Veterinary Society on May 7th, 1925.

Case No. 9 was tested because she had commenced to cough badly and failed to pass the test. The cough disappeared after the first injection and the treatment was continued until December 3rd, with a long break from February 3rd to July 24th. Tested April 16th, 1921, she gave a doubtful but curious reaction and was killed June 15th. Four lesions completely encapsuled were found in the lung.

Case No. 10.—This bull was treated for a long time as a reactor. On *post-mortem* only one lesion could be found in the lung. It had a thick fibrous capsule and inside the capsule was broken down material, but one could not say definitely that it had been tubercular. The special part about the lesion was the extremely thick capsule.

Case No. 11.—A Friesian bull calf. Apparently a complete cure, as both the symptoms which caused him to be tested completely passed away and he fetched a good price at Crewe sale.

Case No. 12.—Countess. This cow was an interesting case, she was treated from April 22nd, 1921 to September 27th, and will be referred to later on.

Case No. 13.—These were two cows given to me as reactors and placed with a neighbouring farmer. They were treated from June 16th to September 2nd, and will also be referred to again.

Case No. 14.—This was a herd of cows that a lady owner gave me permission to test, and then to treat the reactors; as you will see, some were reserved for controls. They were treated for a short period from December 18th, 1919, to February 13th, 1920; tested again and treated from October 11th to March 25th, 1921. As the herd was going to be sold early in September, I had to test again at the end of July and the results were very unsatisfactory; so much so, that I was uncertain whether to continue the experiment or not.

In the meantime, however, about the middle of July, case 6, which had gone lame again, and had been falling off in condition from about March, was placed at my disposal to do as I liked with, and on July 30th, 1921, she received an injection which did not upset her in any way and on September 2nd she received another injection with the usual increase in dose. On calling again on October 1st to give her anbther injection, I was informed by the owner that the last injection had nearly killed her, she had stopped feeding for a time and had to be helped up.

The question then arose as to why the first dose should have no effect and the second dose should nearly kill her.

There had been the usual increase in dose and a long interval in between. On thinking it over, I remembered that I had gone to inject another cow, case 12, on September 1st, in the morning with a freshly prepared solution, but the cow was out at pasture and it was this solution that had been injected into case 6 on the afternoon of September 1st, which would mean it had been mixed about 30 hours. This same cow had shown similar symptoms at the commencement of the first course of treatment, and, on referring to my notes, I found that I had kept the first two injections ten and three days respectively. I also knew that the solution used for case 14 was always mixed just before starting off to inject the cows, or it might have been mixed in the morning and injected in the afternoon, whereas in all the cases previous to 14 the mixture was sometimes freshly prepared and sometimes from two to ten days or more old. Those of the previous cases that had been tested had all passed the test or given a doubtful reaction, whereas in case 14 many of them had given a definite reaction.

Case 6 was now put on to small weekly doses of the mixture (kept for periods varying from three to ten days) and always showed a reaction, so to test the matter further, a fresh mixture was used one week, when no reaction was shown.

This seemed to prove fairly conclusively that when adrenalin and tuberculin are mixed together and kept for thirty hours they form a definite combination. In the light of this discovery, and assuming that it was correct, it was necessary to begin the experiment all over again, and from October 1st, 1921, all cases were treated with a mixture that had been kept two days or more. Cases 6, 10, 12 and 13, were finished off with this treatment.

We will now glance at the remainder of the cases.

Case No. 15 was interesting, and appeared to make a complete return to normal health, and I should like to have tested her six months later.

Case No. 16 showed great improvement with only five injections and passed the test. There is no doubt that the treatment prolonged her life for two years.

Cases Nos. 17 *and* 18 gave similar results to those obtained in case 8 from the first two injections.

Case No. 19 gave very interesting evidence of the curative properties of the treatment and it was a great pity that I could not follow the case to the end.

During these experiments only one preparation of the extract of the suprarenal bodies has been used, *viz.*— adrenalin made by Parke, Davis and Co., and one preparation of tuberculin, *viz.* —Pasteur's, because it was not advisable to have any variation in the strength of the combination, but there appears to be no reason why any reliable preparations of tuberculin and extract of suprarenal bodies should not give the same results. The mixture used has been equal parts of each,although at first other strengths were tried.

The dose to start with is 15 minims, rising to 100 or 120, with a ten days interval for the smaller doses and working up to three weeks or a month's interval for the larger dose. For the preliminary doses a safe rule appears to be one day's interval for each drop of tuberculin in the mixture.

From experiments now in hand, it appears that the treatment for reactors, as opposed to clinical cases, should be carried on for at least a year, starting with two or three small doses and then giving a larger dose with a month's interval. Tuberculosis is largely a chronic disease and treatment must be carried on over a long period, especially when we consider the process of healing in a lesion, say, the size of a hazel nut. It has to be encapsuled, become caseous and calcified,

the bacilli destroyed, and finally completely absorbed, if that really ever happens in cattle.

If any of you contemplate trying the treatment, you will be well advised to start very carefully, as in really bad cases small doses such as 5 minims may have bad results. Sometimes you will get very severe local reactions, depending on the degree of infection, usually the hair coming off, and the skin peeling as though it had been blistered and in case 2 there was an actual slough of the skin.

One case after being injected low down in the neck was blistered on the parotid gland of the same side, and there was a huge swelling extending from the head down the neck and shoulder to the knee—in fact, the cow was quite deformed for the time, but it was all gradually absorbed and there no were bad results.

You will find that Jerseys and Guernseys are more sensitive than Friesians and Shorthorns, and it is wise to start them with small doses.

Should these experiments be verified by being carried out on a larger scale, several very interesting questions will arise.

What rôle do the suprarenals play in protecting the animal body from the tubercle bacilli ?

When the bacilli gain access to the body they are absorbed by leucocytes which cannot digest them because of the fatty coating, but carry them about until arrested at some spot where the bacilli multiply and form a minute tubercle, probably in six weeks time (for that is the length of time said to be necessary between infection and a tuberculin reaction), they then begin to secrete tuberculin which, from these experiments, would appear to unite with the adrenalin present in the body. If fresh bacilli enter the system from the outside perhaps this combination is able to attack and destroy them before they have been absorbed by a leucocyte, or perhaps it destroys the fatty coating and allows the leucocytes to digest them. It may be that somewhere here lies the explanation why a tubercular patient cannot be reinfected from the outside. Further, why is not the cure of a tubercular patient automatic ?

The bacillus is absorbed by a leucocyte which is arrested in some organ of the body; the bacilli multiply, a tubercle is formed and starts manufacturing tuberculin, which unites with the adrenalin and the combination destroys any bacilli that escape from the lesion, but presumably cannot penetrate the lesion to destroy the bacilli in it.

But supposing the infection has been very massive, there may not be enough adrenalin secreted to combine with the tuberculin formed, and there may be too many bacilli thrown into the system for the amount of combined tuberculin and adrenalin present to deal with.

Also, some nervous shock, such as calving or hæmorrhage, or a severe injury, might upset the function of the suprarenals and stop the secretion of the adrenalin and allow any bacilli that escape from the lesions to be lodged in different parts of the body and form fresh tubercles.

Other questions would be :—

What is the true proportion in which to mix the two ingredients ?

What is the exact time required for the complete union. How long will the combination remain stable, and keep it's full strength ?

Is Johnë's disease acted on by adrenalin in the same way as by tuberculin ?

What would happen if cows were tested with the mixture ?

These are some of the many questions which would arise.

In conclusion, it will be as well to summarise the results of the treatment.

Firstly, as to its effect on the subcutaneous test. It appears to prevent a reaction to the test for about six to nine months after the end of the treatment, and in cases 7, 12 and 13, it prevented the reaction permanently.

Secondly, as to the effect it has on clinical cases. In the case of an animal coughing, the cough is much less frequent after two or three injections, and it usually ceases to be noticeable after about six weeks. If the animal has a high temperature when treatment is commenced, it has usually fallen to normal when one goes to make the second injection (about seven days). If the appetite is poor, it improves rapidly, the milk yield increases, and the condition improves steadily until, in from two to three months, the animal appears to be quite normal.

The palliative effects of this treatment appear to be conclusively proved by cases 2, 3, 4, 5, 6, 7, 8, 9, 11, 15, 16, 17, 18, 19—in fact, every cow treated because she showed clinical signs of tuberculosis responded to the treatment almost at once, some of them very decidedly after the first injection and if the treatment had been thoroughly understood from the start and there had been no breaks in carrying it out the results should have been much better.

Case 8, although a complete failure in the end, was one of the best examples of the palliative effect, because at the start two small injections served to restore her to her normal health. She had five irregular injections between January 1st and May 2nd, most of them probably freshly mixed. By September 17th she had gone to pieces again and received treatment from October 15th to April 11th, a good deal of the remedy again not being properly prepared, and by July she was fit to take a prize at a Show. When she was killed on November 8th, the lungs were so bad that one could not cut into them at any spot without cutting through a lesion. The wonder was not that the cow died of tuberculosis but that the remedy could have had any effect on an animal that had received such an enormous dose of infection.

Case 6 was another case of the same description. She only had five injections one of which was kept for ten days and appeared to be absolutely cured, passing the test five months after the treatment had been stopped. She remained in perfect condition for a whole year and then began to fail again. A renewal of the treatment arrested the disease and if it had not been for the severe lameness in hind leg she would have

put on flesh rapidly. It appeared possible to hold the disease in check as long as the injections were continued, but under the circumstances in which she was placed, it was not thought advisable to keep her any longer.

A palliative treatment in cattle showing clinical signs of tuberculosis is not desirable (except in the case of valuable animals) as the treatment would probably have to be kept up for two or three years, monthly doses being given, and considering the chronic nature of the disease and its lesions, it is doubtful whether a complete cure could ever be obtained in bad cases; but, if the treatment should prove equally effective in the treatment of human beings, its value would be very great and the relief given to the patient and the suffering saved would be of great benefit, especially when it is noted how easily the cough can be relieved.

As veterinary surgeons, the point we have to consider is whether we can cure the reactors, or those animals with a few small lesions. That point can only be settled by experimental work carried out on a considerable number of cattle which would have to be treated over a period of a year or more, and which can be killed as and when it is thought necessary.

This work, however, would require more time and money than is at the disposal of the ordinary practitioner.

I have seventeen reactors now under treatment, but they will not be ready to test again until next November. During the course of treatment they have shown interesting variations in the way they have stood the treatment.

About the beginning of 1924, Dr. Schutze, of the Lister Institute, very kindly tested this treatment on guinea pigs, but it proved to be a complete failure. Since writing this paper five more results have come to hand. Four (of a group of thirteen cows) were tested by the double intradermal method recommended by the General Medical Council and all four passed the test absolutely. These cows had been treated from June 6th to March 19th, and would not be ready for the subcutaneous test until the end of the year, but it was thought that it would be interesting to see the result of the intradermal test.

The fifth animal was a Friesian bull, pure, imported; tested on February 22nd, 1924.

His initial temperature was 101·6° F. and his 12th hour temperature 105·8° F. He was very much upset by the test and was off his feed for two days.

Treatment was commenced on February 29th and continued to September 6th. He would have received three or four more injections but was getting so difficult to control that it was thought advisable to stop. He was tested again on May 5th, 1925, with the following result:—

8-30 p.m.	8-30 a.m.	11-30 a.m.	2-30 p.m.	5-30 p.m.
101·6° F.	102·° F.	102·3° F.	102·° F.	102·6°F.

One point to be noted is that animals that have been tested seem to require a longer time before they yield to the treatment.

CASE 1.

Crossbred Shorthorn.

Tested December 16th, 1918.

7 p.m.	7 a.m.	10 a.m.
102	105	102

This cow was also suffering from Johnë's disease. She received Sir John McFadyean's drinks of iron and sulphuric acid and was injected.

1st injection, December 20th.
2nd ,, December 27th.
3rd ,, January 3rd.
4th ,, January 10th.

The scouring stopped, she improved in condition, and on the 13th of January her appetite was improving.

January 26th. Cow was still improving.

February 14th. Started scouring again, but stopped directly the medicine was given.

She was tested again on February 23rd, 1919.

10 p.m.	7 a.m.	10 a.m.
102·8	103·6	102·4

Cow was sold to the butcher and was not condemned.

CASE 2.

Roan shorthorn, third calf, had been doing badly since calving, and was poor after the second calf; she was not feeding well.

Tested December 30th, 1918.

7 p.m.	7 a.m.	10 a.m.
102·8	106·3	105·4

1st injection January 3rd, 1919. During this week the appetite improved tremendously, and milk yield increased.

2nd injection January 10th. There was a decided swelling over the seat of the last injection, and the second injection was made on the opposite side.

The cow fed well up to the 13th, and then the appetite failed.

3rd injection was put off till the 27th of January. After this she started scouring badly, and from the 13th to the 20th she had abdominal pain, and would lie down when turned out to water. After the 20th she improved again.

4th injection on February 4th, and she was found dead on February 5th. *Post-mortem* showed advanced tuberculosis in the lymphatic glands and liver.

CASE 3.

A yellow Ayrshire cow, milking very irregularly, and in poor condition.

Tested July 5th, 1919.

7 p.m.	7 a.m.	10 a.m.
102·8	105·6	104·6

1st injection, July 10th.
2nd ,, July 21st.
3rd ,, July 26th.

She improved steadily in condition, and in milk yield from the 1st injection, and was sold in good order on September 15th, 1919.

CASE 4.

Red and White Shorthorn cow, in bad condition, and coughing badly.

Tested July 10th, 1919.

6-30 p.m.	6-30 a.m.	9-30 a.m.
101·2	104·3	107

I did a lot of work on this cow, but in the end learnt very little. There was a large local reaction to the test injection which I attributed to using the syringe I had used in case 3, and not washing it out, and it is probable that two or three drops were left in the syringe, and when mixed with the tuberculin set up the local reaction. This cow lost her cough soon after the injections were started. In the end the cow had to be killed, and at the *post-mortem* several tubercular lesions were found in the lungs, but nothing to cause death. A portion of the bowel had passed through a rupture in the diaphragm.

CASE 5.

A half-bred Guernsey heifer had been doing badly for some time and was very thin.

Tested October 3rd, 1919.

10 a.m.	10 p.m.	12-30 p.m.
102	104	104

1st injection, October 8th.

2nd injection, October 20th. The cow was no worse, and was licking herself.

October 28th. I did not inject as there was a serious local reaction which had made the cow very stiff, and stand about a great deal, and it had put her off her feed, but she had come round and was feeding well. She had also been knocked into a ditch by another cow.

3rd injection, November 7th. The cow had been feeding well, and her belly was inclined to drop.

On the 14th she went off her feed and started scouring.

Killed November 22nd, too weak to rise. All the mediastinal lymphatic glands were much enlarged, and very hard and caseous. I did not see the other organs.

CASE 6.

A Dutch cow. Had been falling "off in" condition since calving in August in spite of extra feeding. She was feeding well and was lame in the near stifle, although the cowman had not noticed it until it was pointed out to him.

Tested November 25th, 1919.

7 p.m.	5-30 p.m.	7 a.m.	10 a.m.
101·2	102·2	103·2	105

1st injection November 28th.

2nd injection December 14th. Cow about the same, but the lameness was worse. Blistered the stifle on the 20th.

3rd injection January 1st. Lameness much better. Cow eating ravenously and improving.

4th injection. Lameness gone. Cow has improved enormously in condition.

5th injection. Cow still improving.

This cow completely regained her condition, calved again, and gave seven gallons of milk a day.

Tested, July 21st, 1920.

7 p.m.	7 a.m.	10 a.m.	1 p.m.
102·3	102·2	102·2	101·4

Tested again February 22nd, 1921.

9 p.m.	7 a.m.	10 a.m.	12 n.
100·1	102·2	102·1	101·3
3 p.m.	6 p.m.	9 p.m.	
103·2	102·2	101·2	

Injected July 30th, and then from Sept. 2nd, 1921, at intervals to May 7th, 1922.

Tested September 13th, 1922.

6 p.m.	6 a.m.	9 a.m.
102	102·2	102·1
12 n.	3 p.m.	6 p.m.
100·4	102·1	102·4

The cow was killed in November, a bad case of tuberculosis.

CASE 7.

A Jersey cow (Coriosa) reacted when the herd was tested.

Tested December 23rd, 1919.

7 p.m.	7 a.m.	10 a.m.	1 p.m.
100·3	102·3	103	105

1st injection, January 1st, 1920.
2nd ,, January 8th.
3rd ,, January 15th.
4th ,, January 22nd.
5th ,, May 2nd.

Tested July 21st, 1920.

8-30	7 p.m.	9-30	11-45	2-30
101·2	101	100·4	101·1	101·1

This cow has been tested with the herd several times since and has always passed.

CASE 8.

A Jersey heifer, first calf (Clementine) began to fall off in condition after being bulled, and had been going back steadily for about three months. She was seen first on October 1st, 1919, temperature 104, feeding badly, and coughing. Diagnosis: pneumonia and bronchitis both lungs, and suspected tuberculosis, but the whole herd was suffering more or less from husk.

Treated until the 5th with ordinary remedies, but there was no improvement.

1st injection October 5th.

2nd injection October 12th. Temperature normal, feeding well and cough much better. A few days after she was returned to the herd, and gave no further trouble.

Tested December 23rd, 1919, with the rest of the herd.

7 p.m.	7 a.m.	10 a.m.	1 p.m.
102	103·1	102	104·1

1st injection, January 1st, 1920.
2nd ,, January 8th.
3rd ,, January 15th.
4th ,, January 22nd.
5th ,, May 2nd.

Tested July 26th, 1920.

9 p.m.	7 a.m.	9-30 a.m.
101·1	102·1	102·2
12 n.	3 p.m.	4-45 p.m.
102	103·1	102·2

The heifer started to fall off in condition very rapidly after this, and looked as though she was a bad case of tuberculosis.

Tested September 17th, 1920.

7 p.m.	7 a.m.	10 a.m.	1 p.m.	3 p.m.
102·1	102	101·2	101·3	103·3

She gave a definite reaction to the Ophthalmic test.

Treatment was commenced again.

1st injection October 15th.
2nd ,, October 22nd.
3rd ,, November 5th. Heifer doing better.
4th ,, November 25th. Still improving.
5th ,, December 14th. Still improving.
6th ,, January 3rd, 1921. A big improvement.
7th ,, January 25th. A big improvement.
8th ,, February 15th. Slipped her calf fourteen days before time.
9th ,, March 21st. Had aborted before at 7th month.
10th ,, April 11th.

She took a second prize at Oxted Show in July.

On September 26th, she had pneumonia and started coughing badly, and was killed on November 8th, a bad case of tuberculosis.

CASE 9.

Red Dexter cow (Wisdom) about 10 years old, failed to pass the test when tested with the other cows on

January 13th, 1920.

7 p.m.	7 a.m.	10 a.m.	1 p.m.
100·4	105	105·2*	104·2

1st injection February 3rd. Coughing badly.

2nd injection May 1st. Cough had disappeared.

Tested July 21st, 1920.

7 p.m.	7 a.m.	10 a.m.	1 p.m.
101·3	104	103	102

1st injection July 24th.
2nd ,, August 28th.
3rd ,, September 13th.
4th ,, October 4th.
5th ,, October 26th.
6th ,, November 17th.
7th ,, December 3rd.

Tested April 16th, 1921.

8-30 a.m.	7-30 p.m.	10 p.m.
100·1	101·3	100·4
1 a.m.	4 p.m.	6 p.m.
101·4	102·2	103

She was killed June 15th, four lesions in right lung, about the size of a walnut, with a very tough capsule.

CASE 10.

Pure Imported Friesian bull (Ymi) cost £1,000. Lame.

Tested December 21st, 1920.

7 p.m.	7 a.m.	10 a.m.	1 p.m.
101·3	104·3	105	106

Injections were given on February 13th, 1921, February 19th, February 26th, March 4th, March 20th, April 9th, April 23rd, May 14th, June 4th, June 27th, July 18th, August 10th, September 1st, September 27th. Treatment was started again January 21st, 1922, and continued until May 31st.

The bull fell into a pond about October 1st, and had to be killed a day or two afterwards.

One lesion in the lung, quite dead, with an extremely thick capsule.

Case 11.

Friesian bull calf, about 5 months old. He had been snoring for about two-and-a-half months, and holding his head on one side.

Tested April 22nd, 1921.

7 p.m.	7 a.m.	10 a.m.
102	105·3	106·2

Injections were given on April 30th, May 7th, 14th, 21st, June 4th, June 25th, July 16th, August 10th, September 1st, September 27th. At the fourth injection the snoring had stopped, and he carried his head much straighter.

He was sold at Crewe, in splendid condition.

Case 12.

Friesian cow (Countess). Was in poor condition, and did not milk as she should have done.

Tested April 22nd, 1921.

7 p.m.	12th.	15th.	18th.
100·2	102·2	104·1	103·2

Injections were given May 14th, 21st, June 4th, 27th, July 16th, Aug. 10th, September 4th, 27th, October 19th, November 10th, December 5th, 30th, January 21st, February 11th, March 4th, 25th.

From October 19th she improved in condition and became quite fat as the treatment continued.

She was sold about July and tested at her new owner's on November 17th.

7 p.m.	7 a.m.	10 a.m.	1 p.m.	4 p.m.
101·1	101	101·2	101·1	101·1

Case 13.

Fawn and white half-bred cow (Cress).
Red and white half-bred cow (Mustard).

Tested June 2nd, 1921.

	7 p.m.	7 a.m.	10 a.m.	1 p.m.
Cress	101·4	106·3	105	102·1
Mustard	102·1	103·2	105	103·2

Injections were given both cows June 16th, 24th, 30th, July 14th, August 1st, September 2nd, October 3rd, 28th, November 20th, December 12th. 1922: January 2nd, 23rd, February 15th, March 4th, 25th, April 17th, May 9th.

Tested November 15th, 1922.

	7 p.m.	7 a.m.	10 a.m.	1 p.m.	4 p.m.
Cress	102·4	101·8	102	102	102·4
Mustard	102	101·8	102·2	102	102·8

Tested January 26th, 1923.

	7 p.m.	7 a.m.	10 a.m.	1 p.m.	4 p.m.
Cress	101·2	101·4	100·8	102	101
Mustard	101·4	101·6	101·4	101·6	101

Tested December 8th, 1923.

	7 p.m.	7 a.m.	10 a.m.	1 p.m.	4 p.m.
Cress	101·2	101·2	101·6	101·6	101·3
Mustard	100·8	102	102·5	100·8	101·1

Ophthalmic test, both passed.

December 28th, 1923, Intradermal test, both passed.

Case 14.

Mrs. Morgan's cows. This was a herd in which eighteen cows were tested, fourteen passed, three were doubtful, and one passed. They were all tested on December 11th, 1919, and received treatment from December 18th until February 13th, 1920. They were tested again on September 13th, and treated from October 11th to March 23rd, 1921.

	7 p.m.	7 a.m.	10 a.m.	1 p.m.	
1.	101	105·2	105		Not treated.
2.	101·2	103	103·3		Doubtful, not
	101·4	100·5	101	101	treated.
3.	100	106	105	70 m.	Treated, but not tes-
	101·1	102·2	102·3	104·3	ted the third time.
4.	101·4	106·4	106·2	40	
	101	105·2	105	103·4	
	101·3	105·3	106·3	106·3	
5.	101·1	104	104·2		Died.
6.	101	106·3	105·3	50	
	101·1	102·1	103	102·2	
	101·2	101	101	101	
7.	101·2	106·1	106	70	
	100·3	104·2	102·5	102	
8.	101·4	105·2	105·4	40 m.	
	101·1	101·3	101·2	101·2	
9.	101	107	105·4		
	102	104·1	105·1	105	Control.
10.	102·1	105·3	105·2		Control.
	101·2	101·1	102·4	101	
11.	101·3	105·3	106·1	60 m.	
	100	104·1	105	104·1	
	101	101·3	103·4	105	
12.	101	101	103·3		
13.	101·2	105·1	105·2		Control.
	101	103	102	101·2	
	100·4	101	102	102	
14.	101·4	102	103·3		Control.
	102	104·2	102·1	101	
	101·4	101	101·2	101·4	
15.	102	106	106·2		Control.
	101.4	104	105	104	
	106.4				
17.	100·1	104·2	105·2	40 m.	
	101	105	104·3	103·1	
	101·3	104·3	104·2	105·2	
18.	101·3	103·4	104·3	60	
	101·2	101·1	102	103·1	
	101·2	103·3	102	101·3	

Case 15.

Roan Shorthorn cow (Willoughby) in poor condition, and snoring: probably tubercular.

Injections given on January 26th, 1922, February 7th, 21st, March 10th and 27th. She stopped snoring and put on a lot of flesh, calved, and was sold at a sale in April.

Case 16.

Roan Shorthorn cow (L. Wood) was in very poor con dition, milked badly, and carried her head on one side.

Tested March 14th, 1922.

7 p.m.	7 a.m.	10 a.m.	1 p.m.
100·3	106·9	105·4	104·4

Injected March 20th, 30th, April 18th, May 10th, May 31st. Owner did not wish for any further treatment. The cow was in normal condition, milking well and carried her head straight.

March 31st, April 18th, May 10th. On the morning after treatment on these dates the cow staggered as though she was giddy when first turned out.

Tested November 8th, 1922.

7 p.m.	7 a.m.	10 a.m.	1 p.m.	4 p.m.
101	101	101·4	102·2	102

Cases 17 and 18.

Two shorthorn heifers (Skinner).

Both coughing badly and in poor condition with a fluctuating temperature, and did not respond to ordinary treatment carried on over a week. They both improved after two injections, the cough stopped, temperature became normal and fed well. The owner sold them.

CASE 19.

Roan Shorthorn cow (Wheeler) purchased about two months, and was coughing when she arrived but in good condition. She had gone back in condition, and the milk had dropped to one gallon although she had only been calved two months.

Seen first on February 9th, 1924. Temperature 103, coughing badly and grunting; diagnosed tubercular pneumonia, and gave general treatment.

February 11th. Temperature 105, cow worse, treatment continued and tested with ophthalmic test, resulting in a very definite reaction.

February 13th. Temperature 105; no improvement. 1st injection given February 13th.

2nd injection given February 19th. Temperature had fallen gradually each day, and was now 101. Feeding better, coughing less, and stopped grunting.

3rd injection February 29th. Cow normal, temperature 101. Cough nearly stopped, feeding well, milk yield increasing.

4th injection March 19th.
5th „ April 6th.
6th „ April 27th. Giving three and a half gallons.
7th „ May 17th.
8th „ June 7th.
9th „ June 28th.
10th „ July 20th.

Cow appeared to be normal in every way, giving about 2½ gallons a day.

In September I heard the farmer had to leave his farm, and I lost all trace of the cow.

DISCUSSION.

The discussion on the paper was considerably curtailed, as the essayist had to leave shortly after its conclusion.

Mr. COLEMAN: I should like to tender my thanks to Mr. Spicer for bringing forward this very interesting paper, but I am rather non-plussed by his concluding remark—the conclusion I came to all the way through—that this treatment is going to act as a deterrent to a reaction. In case 6 I notice that this cow reacted, as many do, at the last temperature reading. It was tested on the 21st July, the 22nd February and the 13th September, and no reaction took place, but on *post-mortem* a very bad case of tuberculosis was discovered. I notice that in many cases there was no *post-mortem* examination made—therefore it is only an assumption that these were cured. I have myself a very great belief that a cure will be found on these lines. Only last week I had a case of three cows which last April twelve months reacted badly to the subcutaneous and ophthalmic tests. On the next occasion they showed no reaction at all. I would like to ask Mr. Spicer what reading he would give to a temperature of 101.6 to 102 and then, at the eighteenth hour, going up to 104, and at the 21st down to 102 again. Would he read that as a reaction? When I said that Mr. Spicer's concluding remark coincided with the conclusion to which I had come, I meant that I am sorry his suggestion has been brought forward before he has tried the intradermal test, which seems not to be affected by previous testing. In my opinion, the ordinary tuberculin test has a curative action. I think that sites become inoculated and for a time are inert, until some irritation occurs and the beasts react again. Probably this mixed concoction of Mr. Spicer's has a similar effect, because I notice that as soon as the treatment is suspended the cows again get into a bad condition. I think Mr. Spicer's method is a step in the right direction, but I should have much preferred him to have given us more *post-mortem* results.

Mr. SPICER: I think I have been very careful, all through this paper, not to talk about a cure, but of a palliative. It is far from being a cure yet—the experiments have not been carried far enough. Any temperature over 104 I should call a reaction. My argument is that the adrenalin and tuberculin combine to form some substance which at present no one knows anything about and I am reading this paper to postulate that you can treat a clinical case of tuberculosis and, for the time being at least, stop the disease. But in those cases mentioned—Nos. 6 and 8 particularly—the treatment never had a fair chance, because they were extremely bad cases and had huge doses of infection, as was revealed on *post-mortem*. Concerning the "doping," of cattle, we shall do very little good until the Government restricts the sale of tuberculin to responsible people and if in the maintime anything can be produced which will make "doping," difficult, then I think there will be something gained.

Remarks on the Membrana Nictitans and Some Eye Diseases.

By HENRY GRAY, M.R.C.V.S., Kensington.

The membrana nictitans is found in all animals from sharks to monkeys, in which it becomes gradually lost the nearer they approach to the anthropoids. Its remnant in man is called the *plica semilunaris*, which is much better developed in children than in adults. In man, however, a fully developed membrana may now and again be encountered.

In the domestic quadrupeds it is a passive organ, and not endowed with any musculature of its own. Many writers on diseases when describing projection of the membrana over the front of the cornea term it *paralysis*. Now how can an organ not endowed with muscle became paralysed? I would like those writers who have used this denomination to account for their position in the matter. Evidently it has been an affair of the blind leading the blind.

Much nonsense has been written on prolapse or luxation of the Harderian gland in dogs. This is chiefly due to the fact that not every writer is an anatomist or a pathologist, certainly in eye matters.

In Nicolas' *Veterinary Ophthalmology* I described the curling outwards and downwards of the margin of the membrana, and advised excision of the excurved portion. Maturer experience has, however, shewn me that on replacing the bent portion into its proper plane and smoothing the whole anterior surface of the membrane it will retain its normal position. This may seem a trifling matter to report, but excising the black margin of the membrana would blemish the appearance of the valuable show animal for life.

Glaucoma.

The distinguished German ophthalmologists who investigated the diseases of animals' eyes rarely, if ever, met with a genuine case of glaucoma, and it seems certain that few veterinary surgeons with no training in ophthalmology would recognise it if a case were presented to them. In spite of this, many recent writers describe this condition or confound it with another one, which in human ophthalmology, and even in continental works on veterinary ophthalmology, is termed hydrophthalmos.

Glaucoma is limited to that condition of the eyeball in which there is increased tension without increased distension. It may occur as a primary or secondary disease.

Hydrophthalmos is that term given to increased tension and distension of the eyeball, vulgarly called "dropsy." This occurs in children as well as all the domesticated animals, and is an indication that the eyeball will yield to tension, which it will not, or seldom does, in adult man.

In point of comparative histology, however, glaucoma and hydrophthalmos are identical.

Sympathetic Ophthalmitis.

I have never encountered a case in animals, and I do not know of anybody who has.

Blue or Opalescent Parenchymatous Keratitis.

This is fairly common in dogs and generally, if not always, arises during the course of distemper. It usually affects both eyes. There is neither vascularity nor ulceration of the cornea, and very rarely, if ever, any discharge. The appearance of the cornea resembles more or less that of opalescent glass. It usually disappears without any or with only mild treatment. Sometimes, however, it is very slow in disappearing, and if drastic remedies are used it may remain as a permanent blemish. I have seen it disappear after nine months or within a week or two.

Pigmentary Parenchymatous Keratitis.

So far as I am aware I am the only author who has described this condition. It is one of the commonest diseases of the dog's eye, and is incurable. It may progress silently without attracting any attention from the owner. It usually attacks both eyes, and recurrences are frequent. In the generality of cases it progresses until the whole cornea becomes infiltrated with a blackish or brown pigment. More than 10 per cent. of the dogs with prominent eyeballs are affected, and it is not rare in terriers and other breeds. Probably bad hygienic and dietetic conditions *plus* hereditary predisposition are predisposing causes. Irritants, so frequently applied, make it worse.

Vascular Keratitis.

This is a fairly frequent disease in terriers. It attacks both eyes and usually progresses until the whole cornea becomes covered with vessels of various calibres and has a greyish appearance. Not rarely there is a conical condition of the cornea. This may disappear as the condition abates. Recurrences are frequent. It has no connection with distemper. Irritants increase its progress and decrease any chances there may be of recovery. It is not due to granular lids, entropium, or any other condition alleged to be causes in man.

Luxation of the Lens.

Not rare in equines and fairly frequent in dogs. It is chiefly due to congenital subluxation, which becomes complete later on in life. Traumatic luxation occurs from blows or other injuries. I have many times in the horse seen the luxated lens lying down apparently in the vitreous behind the lens, without causing any palpable trouble in surrounding structures or inconvenience to the animal.

In the dog it is a different matter: the lens usually oscillates between the anterior and posterior walls. The friction it causes to the posterior surface of the cornea sets up a posterior keratitis, usually affecting the inferior two-thirds of that membrane, which is indicated by the opacity. In my experience these congenital cases have always affected both eyes.

The irritation increases until the whole of the interior of the eyeball undergoes changes. Hydrophthalmos may occur, and after some months the eyeball will decrease to its normal size.

There is only one way of dealing with such cases, and that is to remove the small, hard and shrunken lens as soon as possible, but not during any active stage of inflammation.

Luxation of lens in the cat is due to hydrophthalmos arising from tuberculosis of the eyeball. In the quiescent stage of the disease, when all opacity has cleared up, one can see, through the widely dilated pupil, the lens lying in posterior chamber or in the liquid vitreous. In such cases there is no necessity to use an ophthalmoscope unless out of curiosity, because when the lens is gone there is no reflection of rays, which is an indication there is no lens, and one can readily see the fundus.

There is no organ in the body that can be studied so well as the eye, especially in our domesticated animals, and at a very little cost of time or money. How many are there in our profession who have studied with an ophthalmoscope the normal fundus of any of our animals? Ophthalmoscopy in veterinary practice is much easier than it is in human practice. It can be carried out anywhere where there is a little shade. It should form a pastime study.

I was very much interested in reading the various papers on specific ophthalmia that appeared during and after the war. I was surprised at the ignorance of anatomy, physiology, pathology and therapeutics of the eye shown by many of the authors, who seemed to know less about the subject than did writers of a hundred and fifty years ago. If they had referred to Reynal's masterly article, which appeared in 1861, they would have had a good basis from which to jump off, and they would have learnt that the disease had up to that time been always prevalent in those districts in which it appeared during the late Great War. The veterinary writers on the subject during

(Continued at foot of first column next page.)

The Veterinary Record.
30th May, 1925.

THE INSPECTION OF HORSES IN MINES.

For some time past there has been considerable dissatisfaction among members of the veterinary profession engaged in colliery practice regarding their position as it is affected by the present method of inspection by the Mines Department. We think our members will agree that there is very evident cause for this dissatisfaction, as the position of the veterinary surgeon attending pit ponies is sometimes rendered very unpleasant owing to the inspectors of the Mines Department being laymen.

At the present time there are eight of these lay horse inspectors who pay periodical visits to the collieries in each of the eight Mines Inspection Divisions, and so far as the care and condition of the horses, their equipment, their accommodation and hygiene are involved, the word of the lay inspector is law, for we understand that if the mine-owners neglect to carry out the instructions of the horse inspector they are liable to prosecution.

It is well known that many of the larger colliery companies retain whole-time veterinary surgeons to advise them, and to superintend the welfare of the ponies and their treatment. It is hardly to be wondered at, therefore, that the views of the professional man and the layman should, at times, be at variance, particularly with regard to the fitness of horses for work, and to the suitability of equipment and the hygienic construction and management of the stables. In many other collieries part-time veterinary surgeons are in regular attendance, whilst in others the services of a veterinary surgeon are mainly called upon when required. In a few cases, we understand that a veterinary surgeon is seldom called upon, the work being done entirely by laymen.

Our readers must be aware that for some years past there has been considerable agitation regarding the alleged ill-treatment of pit ponies and many allegations of cruelty, and though we think that these allegations have been unduly exaggerated, there is not the slightest doubt that in a large number of mines the condition of the pit pony could well be ameliorated, that in a few cases ponies should be removed from the mines as unsuitable for further work, and that such diseases as canker in the foot (which seems very prevalent) should be eliminated by drastic measures. Such necessary measures as these are essentially the exclusive work of an expert veterinary surgeon and should not be in the hands of laymen or under the control of lay inspectors, even though the latter be appointed by a government department.

It is most exasperating that in a few cases, as we have mentioned above, the skill and professional knowledge of the veterinary surgeons, which are relied upon by the mine-owners should be overridden by the government horse inspector. We do not think that it was the intention of the Mines Department, in appointing these horse inspectors, to overrule the skill and professional advice of professional men; in fact, in each of the eight Mines Inspection Divisions, the services of a veterinary surgeon in a consultative capacity are retained, but needless to say, these services are not called upon very often by the horse inspectors.

We are strongly of opinion that the first step in overcoming these obstacles to efficiency and to the real welfare of the ponies is the appointment of a Chief Veterinary Officer in the Mines Department, whose duties would include the periodical inspection of pits and the supervision of the work of the eight lay horse inspectors. To this officer all veterinary surgeons now responsible for the horses in collieries could appeal in those cases where they are in direct conflict with the present lay inspector, from whose ruling there is at present no appeal. To this officer the Mines Department could refer as a fully competent and professional expert to advise the Department on all points appertaining to the care and treatment of horses underground.

We feel sure that such an officer, if he be well versed in the necessities of the mines and a man of tact, would be welcomed by all veterinary surgeons in colliery practices, for he could strengthen their position with the mine-owners and with the general public, and his periodical visits as a professional man to those pits where a veterinary surgeon is at present never, or only rarely, called in, would go a long way towards improving the welfare of the pit ponies.

Representations on these lines have already been made to the Under-Secretary for Mines by this Association and have been favourably received. We sincerely hope that after their consideration the appointment of a Chief Veterinary Officer will be deemed not only desirable but even necessary.

(Continued from previous page.)

the first three-quarters of the XIXth century had not increased our knowledge of the malady since the days of Gibson, who copied from Solleysel and others, who had, in their turn, borrowed their knowledge from the Romans. Personally, I believe that the reason why specific ophthalmia was so prevalent at the end of the eighteenth and beginning of the nineteenth centuries was that horses were brought back with the disease on them after the completion of continental wars. It was, as was the custom in those days, put down to bad sanitation, etc., which were always invoked to explain the mysterious.

Every known method of natural and experimental transmission has been attempted, but with absolute failure. It is quite possible that this disease is transmitted by an indirect agency, as is malaria by the mosquito. Some authorities have discovered piroplasmal-like organisms in the blood; others, various species of entozoa in the affected eyes.

DIVISIONAL REPORTS.

Central Division.

A well attended meeting of this Division was held at 10 Red Lion Square, W.C., on May 7th, 1925. The President, Major P. J. Simpson, D.S.O., J.P., occupied the Chair, and the attendance book was also signed by the following :—Messrs. Auld, Barr, Brown, Bryden, Clarke, Coleman, Davenport, Dunkin, Heath, Howard, H. C. King, N. S. King, W. S. King, Kirk, Livesey, Lloyd, Lucking, Mason, McGunn, McIntosh, Parkin, Perryman, Major Rees-Mogg, S. H. Slocock, P. W. D. Smith, Stephens, Stroud, C. N. Thompson, W. N. Thompson, Townson, Villar, Widden, A. E. Willett, F. W. Willett, Winter, Professor Wooldridge, Lt.-Col. Young, and J. F. Macdonald. *Visitors*: Messrs. Albaud, Baxter, Conisbee, Fenwick, Reid and Shah.

The minutes of the two previous meetings, having been published in the *Record*, were taken as read and were signed as correct.

CORRESPONDENCE.

1. Apologies for absence from Major Hobday, Mr. H. D. Jones, Capt. S. L. Slocock, Mr. J. Willett and T. L. Wright.

2. From Mr. W. R. Davis, of Enfield, resigning his membership with the greatest regret, as he was leaving the London area.

Mr. McINTOSH: Mr. Davis has been a member of this Society for many years and his interest in its activities has, throughout that time, been very great. He has, moreover, always been ready to show it in the most practical form by coming forward to present papers for the consideration of the Society which have never failed to prove of the greatest interest and value to us. In addition, Mr. Davis has filled the Presidential Chair with distinction, and I beg to move, Sir, that he be made an Honorary Fellow of the Society.

Mr. F. WILLETT seconded the proposition, which was carried with enthusiasm. The resignation was then accepted.

The Secretary was instructed, when conveying this information to Mr. Davis, to express the very real sense of loss felt by the Society in his departure.

3. From the General Secretary of the N.V.M.A., enclosing a scale of minimum fees agreed upon by the Council of that body as the lowest which should be paid for inspection work under local authorities. The scale was read.

The PRESIDENT: One question occurs to me, and perhaps Mr. Livesey would answer it—would the "National" be prepared to send out that scale of fees to veterinary inspectors for their digestion? It is rather difficult for veterinary inspectors who happen to be attending a meeting at which this scale is read out to become conversant with it.

Mr. LIVESEY: The feeling of the Council of the "National" was that it would be as well that this scale should not be published in the Press, but if any part-time inspector will apply to me I will furnish him with a copy of the scale, provided he does not publish it. It is for the information of all members of the Association.

4. From Mr. F. Bullock, inviting the Society to appoint the President and the Secretary as representatives on the Garnett Memorial Fund Committee. The SECRETARY read the statement (accompanying the letter) outlining the activities on behalf of the profession of the late Mr. Frank Walls Garnett.

The PRESIDENT: This letter and statement were read to the Council of the Society prior to this meeting, and the Council suggested that the President and the Secretary of the Society, during their term of office, should act on the Garnett Memorial Fund Committee. I should like the action of the Council with regard to that confirmed first of all.

The meeting confirmed the action of Council, on the proposition of Col. YOUNG, seconded by Mr. F. WILLETT.

The PRESIDENT: There are a great many in this room who knew Mr. Garnett personally, as I had the pleasure of doing, and all those will bear me out in saying that there was no greater worker for the good of his profession in an absolutely quiet and unostentatious way than Frank Garnett. That long list of his endeavours is a sufficient guarantee of the extent to which he had the welfare of the profession at heart. I hope, that not only as a Society, but as individuals, we shall do all we can towards making this fund a success. Perhaps on a future occasion I shall be able, as I shall be serving on this Committee, to tell you what form the memorial will take.

Mr. LIVESEY: I rise with some diffidence, in the presence of the President of the Royal College, who is President of the Fund, but I should like to move that the Society support this appeal, for I may say that my great admiration and respect for Mr. Garnett would impel me to be, if possible, the very first to urge support of this appeal upon the members of this Society. Mr. Garnett was really an exceptional man, and I suppose no more unselfish veterinary surgeon ever lived. I think that this wealthy Society should make a grant from its resources to the Fund. But that should not in any way prevent private individuals from subscribing and I hope everyone who is here will make his own contribution, great or small. At the same time, I think this Society should subscribe, and I would like to move that this matter be referred to the Council, to see to what extent this Society can commit itself in this connection, and to report to a future meeting.

Mr. S. H. SLOCOCK, in seconding the proposition, said: As I am acting as President of this Fund, you will expect me to say a few words. Mr. Livesey has indicated to you some of the main features of Mr. Garnett's exceptional life, and also that he lived for his profession. He so endeared himself to all of us that we must all wish most sincerely to see this Fund made a success. We want to see something to commemorate his memory—something worthy of his profession. I want to say that we have no scheme at the moment, and that the matter is still open for

any suggestion from the profession. We have a small Council already appointed, which we wish to augment by the acquisition of all Presidents and Secretaries of local Societies. We have the President of the "National" Association on our body as a joint Treasurer, and you will see that we are about to form a very big and very influential committee to deal with this matter. We hope that every member of the profession will forward his subscription, be it large or small, in order that all may participate in the commemoration of the good work done by Mr. Garnett.

The proposition was carried unanimously.

Morbid Specimens.

Capt. H. Kirk: I have brought here a portion of the cæcum of a five-year old horse. I was attending a chestnut gelding on Sunday night for colic, and he was mad with pain all that night and all Monday. He died during Monday night. I made a *post-mortem* examination on Tuesday, and I found that death was due to intussusception. I have never seen one in my life before, but the slaughterman said that he had seen one eight months previously. It is apparently a very rare condition, and I thought it was worth while bringing it to your notice. I would like to ask Fellows how long they think this invagination had been in existence before the horse showed symptoms and how long the horse might live. Dollar describes oxen as living for five or six days, but that horses die very rapidly. In this case the ileum was invaginated into the cæcum.

Another specimen which I have here is the liver of a six weeks' old terrier, which is full of abscesses. It is probably a navel infection. The remaining puppies of the litter were doing all right, but this one died.

Captain Davenport: I have here some specimens of *Taenia perfoliata*, which were removed from the cæcum of a horse destroyed at Aldershot three weeks ago. They were confined to the cæcum. In some hundreds of *post-mortem* examinations I have never before found this parasite in the horse, though that may be because I have not looked very carefully for them. I should like the views of Fellows as to whether or not this parasite may be regarded as rather rare in this country.

Captain Widden exhibited a date stone which he had removed from the stomach of a six months' old puppy, which suddenly collapsed after having been ill, he was informed, some time previously. Shortly after it arrived, convulsive movements were noticeable after giving any liquid. Had the puppy not been weak, he would have tried it with apomorphine, but it died after a few hours.

Captain Widden also exhibited a cone-shaped body which had been brought to him the previous day by a client, who said that it had been passed by a cat. The body was about as thick as the middle finger and about two-thirds as long, and it contained approximately double the quantity of the red substance then observable.

Professor Wooldridge: I am very interested in one or two of the specimens. Captain Kirk's case of intussusception is certainly a very unusual one in the horse, the ileum passing through the ileo-cæcal valve and into the cæcum. This is one of the commonest forms of intussusception met with in the dog, but it is not common in the horse, in which animal the intussusception generally occurs higher up the small intestine. I think that symptoms are set up very readily indeed after the intussusception commences, and that death takes place much earlier in the horse than in the ox, as a general rule, is well known. I believe death to be due to a very rapid auto-intoxication after strangulation. In the ox the condition will exist for much longer than the four or five days suggested—in fact, it is not uncommon for an intussusception to be followed by recovery, when there is generally passed a cast of the mucous membrane of the small intestine with comparatively dry fæces usually impacted in it, so that you can pick it up as though it were a stake. That may have given rise to the expression "staked" which is used in the Midlands.

Concerning Captain Davenport's parasitic exhibit, *Taenia perfoliata* is not a very uncommon parasite in this country, though it is not so common, of course, as the *Ascaris* of the horse. Only the other week I had sent up to the College, from Gloucestershire, a piece of intestine which contained a considerable number of these parasites, but the interesting thing was that the case was also associated with perforation of the bowel and the horse had died from peritonitis. In the ordinary way, these parasites do not injure the mucous membrane, and I think it quite probable that the presence of the parasites and the puncture with peritonis was a coincidence rather than cause and effect.

Mr. Perryman: I think Captain Kirk's specimen of intussuscepted bowel brings home to one very forcibly the importance of making *post-mortem* examinations, whenever possible. I have seen cases of intussusception, but not in the region mentioned by Captain Kirk. On two occasions I had intussusception of the cæcum into the large bowel, and I have come to the conclusion that that is where they usually take place. Some years ago I had a case in which an animal showed continuous pain for three days. It eventually died and on *post-mortem* there was, when the abdomen was opened, an absence of the cæcum from view (we know how this organ usually pops out) and we discovered the invagination into the large bowel. The cæcum was very much thickened and looked like a mass of liver inside the bowel. As I have indicated, I have been under the impression that intussusception generally takes place from the cæcum to the colon. I should like to emphasise again that we should make more *post-mortem* examinations than we usually do. This is an almost unique case, and it shows that we have much to learn.

The President thanked the Fellows who had brought those interesting specimens for the consideration of the meeting. With regard to *Taenia perfoliata* it brought to his mind a cruelty case, occurring some years ago, in which a man was being

summoned for starving his horse. The animal was destroyed, and in that case not only the *T. perfoliata*, but the *armatus* and *tetracanthus* were found, together with *ascarides*. All these specimens were produced, and the man got off.

NOMINATIONS: Messrs. D. T. Reid, of Dorking, and A. E. Ward, of Slough, were nominated as members of the Division.

On the proposition of Col. YOUNG it was unanimously agreed that Dr. Juan E. Richelet, a veterinary surgeon recently arrived from the Argentine, should be made an Honorary Fellow of the Society during his stay in this country.

Mr. MCINTOSH: Probably most of you have noticed that our President has just had the honour of Justice of the Peace conferred upon him, and I think we should not allow this meeting to pass without congratulating him upon the receipt of that great honour. I should like to move, on behalf of this Society, that our heartiest congratulations be given to our President on this account.

The meeting, without waiting for the proposition to be seconded, carried it with hearty acclamation.

The PRESIDENT: I thank you very much indeed. I do appreciate the honour which has been conferred upon me, for I take it as being conferred upon the profession as well. It is just one of those little things that helps to bring the profession forward into the public eye, and I thank you very much indeed for your warm congratulations.

Continuing, the PRESIDENT said: There is a matter of business which remains to be considered, and that is the question of the reports of speeches made by members to this Society during the meetings. As you know, we have a very efficient reporter taking down all we say, and the report of the meeting, after having been dealt with editorially, is sent to the printers to be set up in type. Upon the return of the proof sheets, these are despatched to every contributor to the discussion which has taken place. What has happened in the past has been that the Editor has received the verbatim report and also the returned proof from the man who made the speech and, on seeing them side by side, it is seen that they are not the same at all. It is obvious that the recipient of the proof has taken the opportunity to state all that he wished he had said at the meeting. An amendment of the phraseology, or the rectifying of an obvious and important omission are in no way objected to, but the re-writing of a contribution, necessitating, as these often do, a complete re-setting in type, is an expensive matter. It has been thought, therefore, that it would be far better for those who want to look over the speeches which they have made at these meetings to apply to the Secretary of the division for the transcribed notes to be sent to them before they are despatched to the printer, but if no application is made to the Editor of the *Record* by the Secretary of this Division for reports of the speeches, they will go in as taken down by the reporter. I hope that is clear, that in future these speeches will not be sent out to individual members for editing by themselves unless application is made at the end of the meeting to the Secretary of the Division.

Mr. MCINTOSH: Suppose all members want a copy of their remarks, they would be entitled to it, and the position would be as before. Personally, I think it is a good thing for every member to revise his remarks. There are some things we might say in an impromptu discussion which it is not always wise to publish. No matter how good the reporter may be, you will frequently find errors, and the right man to correct these is the man who delivered the remarks. I am, therefore, not at all in agreement with the suggestion put forward. I think all these notes should be sent out and revised as they have been heretofore.

Mr. LIVESEY: The Central Division wants its report published in the *Record* a week before the ensuing meeting, which leaves little time in which to get the material corrected, set up the proof, and again corrected and eventually published. If you like to give us an extra month we can do it quite well, but the work of transcribing and preparing the report has to be fitted in with that of the reports of many other meetings and an immense amount of other work.

After considerable further discussion, it was eventually agreed that the new procedure be adopted forthwith.

Forthcoming Meetings.—The PRESIDENT: We have been invited to meet, on the second week in June, at the Wellcome Physiological Research Laboratories, at Beckenham, Mr. Dalling, the chief of the veterinary staff, has offered to read a paper, and your Council have accepted the invitation. You will note that it is to take place on the second Thursday in June instead of the first. With regard to the July meeting, the Council has put forward as a suggestion—and I think the members will accept it—that we make it a social outing in the country. It has been suggested that the Thames Valley would be a good place to visit. If you approve of that suggestion, I personally would do what I can to make the meeting a success. It would be an outing for ladies as well as for gentlemen, and the procedure would be for all to collect here and drive down to Henley, get on a launch and come up to Maidenhead, where conveyances would meet us, and so home.

Captain KIRK moved the formal proposition "That the summer meeting take the form of a social outing with ladies present, the rendezvous to be arranged by the President and Secretary."

The proposition was seconded by Mr. LIVESEY and carried.

The President then called upon Mr. A. SPICER to read his paper entitled "A treatment for tuberculosis in cattle that has given interesting results."

[Mr. Spicer's paper and the brief discussion which ensued are published elsewhere in this issue.—ED.].

The PRESIDENT, when calling upon members to discuss the paper, apologised for the curtailment which would be necessitated by the early departure which the essayist had to make to catch his train.

At the conclusion of the discussion, the PRESIDENT remarked that the paper was of a nature which required and merited the most careful consideration—much more than they had been able to devote to it that evening. They would read it in the *Record* with the very greatest interest, when they could study it and form a far better judgment than they could possibly do that evening. He tendered to Mr. Spicer, on his own and on their behalf, his very best thanks for his essay.

The compliment having been suitably acknowledged by Mr. Spicer, the meeting was terminated by the passing of a vote of thanks to the President for his conduct in the chair.

J. F. MACDONALD,
Hon. Secretary.

Lancashire Division.

MEETING AT MANCHESTER.

(*Continued from page* 437.)

Sudden Death. By G. MAYALL, M.R.C.V.S.

My remarks this afternoon do not refer to cases of sudden death due to poisoning, or under an anæsthetic.

I think this subject is worthy of more than passing notice from veterinarians. When the course of true illness seems to be running smoothly and we are congratulating ourselves on a satisfactory termination of a case, a sudden change for the worse appears, and death terminates both the activities of the patient and those of the veterinary surgeon. Again, an animal in seeming perfect health may be here to-day and gone before the morrow.

In human subjects syncope, asphyxia and coma are well recognised reasons for persons apparently in the full flush of health suddenly becoming lifeless corpses. The question of syncope in animals never seems to me to have been given the prominence it deserves. I am sure that it occurs *per se* and also through excessive root feeding. We get it, too, from shock, but the emotion which brings on heart failure in the human subject is a factor with which we have not to deal in animals. In the majority of our cases there is diminution in the quantity of blood circulating in the body due mostly to valvular disease of the heart or internal or external hæmorrhage; not uncommon too, are cases of syncope due to disease or toxins paralysing the muscles of the heart. In this instance I believe with one of my old teachers, Mr. E. P. Edwards, of Mold, that the majority of sudden deaths in milk fever are due to syncope. Many of us have encountered sudden deaths in old horses where the animal has set out quite gaily and lively in the morning and has dropped down actually while in harness, or being ridden in the saddle. On *post-mortem* it has been a surprise to find an *ante-mortem* clot in a chamber of the heart or occasionally in the posterior aorta of a horse. In a cow dying suddenly a clot may be found in the posterior vena cava. This *ante-mortem* clot, which is a thrombus, is also seen in patients dying of pneumonia, pleurisy, peritonitis, and other exhaustive diseases. If we do not find this clot we ought to remember that certain other conditions of the heart may lead to syncope, such as atrophy, dilatation and fatty and fibroid degeneration. The worst part about the ear and the stethoscope is that they may tell us the condition of the valves of the heart, but except in cases of extreme debility or degeneration they tell us very little of the muscle of the heart itself, that great driving power that keeps going the circulation, and with it life and to which the valves are only accessories.

Big, fat, plethoric horses always need careful heart and pulse examination when being tested for soundness, as now and again in them one gets a perfect simile of the apple that is fair to look upon but is rotten at the core. In my younger days I remember being puzzled when a horse with a septic wound of the foot, apparently going well, died suddenly of pneumonia. My pathological knowledge of emboli ought to have enabled me to solve the riddle, but the proper application of knowledge only comes with riper years.

In the pig, sudden deaths may occur from growths on the valves of the heart due to survived attacks of swine erysipelas, to worm pneumonia, and to overlaying by the sow in the case of suckers. Fat swine succumb from syncope when travelling to shows in hot weather. Asphyxia or suffocation is caused by the arrest of respiration through disease of the lungs direct, or by some mechanical interference with the functions of the respiratory organs. Cases of this kind arise in pigs and sheep conveyed by rail, where they get down in the truck, and their breathing is obstructed by their being jammed up with the nostrils against the side of the truck, or the airway is obstructed by the bodies of their companions, or cut off by serious neck or throat lesions. Death from asphyxia may result in cases of epilepsy in the pig and dog where respiration is obstructed, but no doubt coma following convulsions is the most frequent cause of death in these cases. Strictly, death from coma means finally death through syncope, for the brain failure produces paralysis of the heart. Death in pigs or horses from sunstroke or heart stroke is an example of this class of sudden death.

In 1922 we had several cases of primary delirious or convulsive distemper. These convulsions have come on quite suddenly and the dog has had no previous catarrh or malaise. The brain substance seems to be attacked and the dogs, with us, have all died of coma. Coma in dogs may also arise from diabetes, but in these cases there is previous warning of the expectation of death.

This question of sudden death is important to veterinary surgeons who take in animals for their keep. Now and again a subject may be left by an owner in seeming perfect health, and yet die suddenly before he or she returns to claim it. In such cases it is wise to make a *post-mortem* and keep the diseased parts and if necessary, explain the condition and its results to the owner. Two instances may illustrate

my point. An Irish Terrier left with me was found dead in his kennel one morning, although lively and cheerful the previous evening. *Post-mortem* revealed a ruptured spleen with a very large amount of clotted blood adherent to it. A big cystic angioma as large as a regulation sized cricket ball was attached to the spleen, and was filled with clotted blood, supported by a small amount of fibrous tissue. The tumour, clotted blood and spleen (not intact in substance) weighed 1 lb. 13½ ozs. The growth and lesion were not suspected during life, and clinically seemed indeterminable. The chances of noticing it would have been better in a smooth-haired dog. Right up to the last the dog took food well. The tumour appeared to have been present for a long time, and the blood to have been clotted as it escaped slowly from the spleen. The dog died of syncope and the condition was never suspected during life. A Schipperke dog left for keep, while the owner was on holiday, died suddenly. *Post-mortem* revealed enlarged prostate gland and a bladder brimful of urine; the kidneys showed old standing lesions of nephritis and there was an *ante-mortem* clot of blood in the aorta. The left kidney was atrophied and weighed 40 grains, and the right showed fibroid changes and weighed 1 dram. There is no doubt that chronic nephritis may exist for many months in the dog and be accompanied by heart disease without the condition being suspected. The late E. Wallis Hoare, F.R.C.V.S., in *A System of Veterinary Medicine*, ascribes the disease to malhygiene of house training, and the habit of only giving dogs a morning and evening walk or practically only allowing them to micturate twice a day.

Those who make many fowl *post-mortems* will be struck with the pathological truth that liver disease and heart disease very frequently run together. The question of sudden death is quite interesting from a forensic veterinary medicine point of view, and it behoves us to be acquainted with the forms and guises in which it may arise in animals.

Bovine Hydrops Uteri Hysterocentesis: Diabetes Mellitus in a Dog. By E. H. Curbishley, M.R.C.V.S.

I was very interested some time ago in reading an article in the veterinary press from the pen, I believe, of Mr. W. A. Campbell, M.R.C.V.S., Boroughbridge, in which he suggested that the proper line of treatment in advanced or severe cases of Hydrops Uteri was Hystero-centesis, which evacuation of the dropsical fluid would bring about an expulsion of the fœtus. This is in sharp contrast to the findings of the great American obstretrist—Williams—who states that the best hope of a successful treatment is to break down the uterine seal and attempt manual dilation of the Os, failing which it might be necessary to resort to Hysterotomy; he states further that in the one case he trocarised, the uterus appeared to fill up again to its original dimensions within forty-eight hours, and therefore he appears not to advocate it. He describes three forms of uterine dropsy, viz.: Parietal and Visceral Hydrops Uteri and Hydrops Amnii, and says also that there may be Hydrops Allanti, but as the normal allantoic fluid is usually turgid and the liquor amnii clear and straw-coloured, it seems more likely that the condition is usually Hydrops Amnii, but as this cannot be decided *post-mortem* if the membranes have been handled, torn or broken, it is unsafe to make a definite statement with regard to it. In view of the foregoing facts, however, I determined to test these theories upon the first opportunity, and when on June 25th last I was consulted in a case of this kind, I advised the owner that the only hope lay on immediately lightening the animal's load, and as quickly as possible inducing the premature birth of the calf. The cow having no salvage value, the client at once agreed to the operation.

The cow was a good class dairy beast carrying its second calf, and the history was that for some time, owing to its inordinate size, twin calves were suspected. The cow was "out" day and night, and for several days was noticed to have separated from the herd, and to lie and stand listlessly about alternately. She had not been seen to graze or ruminate for several days, and was therefore brought into a box, through the doors of which she could only just squeeze. She was then about seven weeks from full term.

My partner, Mr. W. F. Morton, M.R.C.V.S., undertook the case, and after a careful examination we decided that possibly our first serious risk might be one of shock from sudden relief of long continued abdominal pressure, and to combat this our first step was to cover the cow with five or six thick woollen rugs, and to give a hypodermic dose of adrenalin; this was repeated half-way through the operation. We then chose the site of puncture, selecting a spot free from what the farmers call the milk veins, to the right of the middle line and in front of the udder. This was dressed with tinct. iodi and, after shaving, a small incision was made through the skin and a sterilised trocar, such as is used for tympany of the bowel in the horse, was plunged up to the shoulder into the uterus. The flow was carefully regulated, and it took about one hour to draw off 15 gallons of a clear straw-coloured fluid, very like whey, so that if its weight approximated that of milk, the cow would be lighter by some 150 lbs. The canula being withdrawn, a small drink of water was allowed after a capsule of ammon. carb. had been given as a ball, and when hay was offered the cow took it readily, although she had eaten nothing at all for several days previously. Seen next day she appeared to be doing well, eating and cudding, and although palpably pregnant, moved with much greater freedom than previously. Two days later the owner seemed to think she was "filling" again, but as there was quite evident relaxation of the pelvic ligaments and vagina, he was advised to carry on and notify us at once if symptoms of labour developed.

On the morning of the eighth day, we received notice that she was "fairing," and Mr. Morton attended immediately. He succeeded in delivering a live bull calf, and the voiding of much fluid, and eventually he removed the whole of the fœtal membranes, although he had some difficulty in detaching them

from some of the cotyledons and had a little hæmorrhage. He then swabbed thoroughly and inserted pessaries. These were used for several days, and the patient gradually improved until she finally attained complete health and a good flow of milk; the only trouble being that pressure had given rise to an atonic dyspepsia, probably with some stasis, but when this was corrected she needed no further attention.

The calf was left on the mother until six weeks old, when it was sold for veal and when I saw the cow a few days ago I found her three parts fat and now, after seven months, still giving more than two gallons of milk per day, and she is also said to be in calf.

I shall certainly continue this treatment on suitable cases, although many which are carrying a limited amount of fluid may be left and carefully watched. I hope you may be sufficiently interested also to try it and report results in order to discover whether Campbell ought not to be followed rather than Williams.

Diabetes Mellitus in a Dog. Mr. Curbishley also gave a brief description of the case of an Alsatian wolf dog that had been ill for a considerable time, and was found to be suffering from Diabetus Mellitus. He pointed out that, in a recent number of one of the Medical Journals, a great authority on this subject (Sir W. H. Wilcox) said that it was a good rule to regard every patient found to be suffering from Glycosuria as being diabetic until the contrary was proved; although Glycosuria could occur in many cases in which the pancreas was not apparently involved, as in the conditions termed alimentary and renal diabetes. Also that, as the pancreas seemed to be particularly susceptible to the deleterious results arising from focal infections or toxæmias from severe or repeated attacks of disease, especially those of a contagious nature, it was always necessary to make a most thorough search for seats of focal infection, and completely to eradicate them by surgical means before attempting to treat diabetes, as in many cases the carbo-hydrate tolerance became quite normal when such centres were removed, and without the use of insulin. A long list of diet tables was also published and it was shown how, by the help of these and other means, including the use of insulin, the conditions of hyperglycæmia and acidosis could be controlled.

The chief reason for those quotations was to draw attention to the great importance attached by the medical profession to all and every kind of focal infections as a cause of serious secondary disease, and to suggest that it was within the bounds of possibility that very many cases of disease which they were called upon to treat might, in fact, not be primary auscultating the abdomen.

An Interesting Case of Impaction of the Bowels associated with Spasm of the Diaphragm.

By W. Walker, Esq., M.R.C.V.S.

Subject.—The subject of this case was a Shire mare 8 years old, belonging to a farmer.

History.—The mare had been noticed a trifle out of sorts the previous day, but she had done her work and eaten her food as usual. One symptom the owner's son had noticed was that she defæcated more frequently than usual. It was the day following the observance of these symptoms that I was sent for, the message stating that the mare was bad with gripes. On arrival I was told that the mare had refused food that morning, and there were no signs of fæces having been passed during the night. Colicky symptoms were shown—pawing the floor, looking round at flanks, and making attempts at lying down. Pulse was full, rate not much altered, temperature normal, some slight persistaltic sounds were heard on auscultating the abdomen.

I administered Ol. lin., Spts.æth. nit.and chlorodyne.

The animal was seen again the same evening; she was still in pain, and 2 grs. of morphia were given hyperdermically.

Second Day.—Mare's condition was similar but pains were less acute, and there was more of an interval between the spasms. Peristaltic sounds uncertain and slight and no evacuation of fæces. I made a rectal examination and found the rectum practically empty, except for one or two balls of fæces which were moderately firm and well formed. The large bowel was not very full, nor was it at all distended. The mare strained a good deal, but on the right side I detected a prominent and unyielding mass which I judged to be the base of the cæcum. I prescribed six stimulating draughts, a dose to be given three times daily.

Third Day.—Still no evacuation of fæces. Pains less noticeable—only occasionally would the mare look round at her flanks. Pulse 45, temperature 100° F. It was noticeable, on listening carefully to the peristaltic sounds, that they seemed to be as it were, cut short instead of the sounds passing along the bowel. I passed the stomach tube with some difficulty and administered: Sodium chloride, 1 lb.; Formaldehyde, ℥1, and water, 2 gallons.

I also gave 1 gr. strychnine hypodermically, and told the owner to continue administering stimulating draughts.

Fourth Day.—Pulse and temperature normal, mare looking dull and drowsy. No signs of movement of the bowels. At this stage I hesitated whether or not to continue with stimulating treatment along with saline per stomach tube. A clinical report by G. Caulton Reeks, which recently appeared in the *Record*, in which he described a case of impaction of the cæcum lasting about nine days, during which time he administered altogether somewhere about 130 gallons without relieving the condition, made me hesitate. Also a remark by the owner, who stated that the mare seemed to get uneasy after each dose of medicine, made me decide to adopt a less energetic form of treatment.

I used the stomach tube to administer an enema, passing the tube well up the colon for 6 to 7 ft. The soap water injection was fairly well retained, and I walked the mare about for 10 minutes afterwards.

I told the owner that the case was serious, and I did not expect any movement of the bowels for two or three days.

More or less as a placebo, I prescribed six draughts each containing sodæ bicarb, ℥1 ; sodium chloride, ℥1, a dose to be given three times daily.

Fifth Day.—The condition of the mare unaltered. I repeated enemas, which brought away a certain amount of fæces, but peristaltic sounds were still more or less indistinct. Pulse was feeble and there was a sour smell from the mouth. I passed the stomach tube and administered sodium chloride, ½ lb. ; water, 1 gallon.

Sixth Day.—Case was not seen.

Seventh Day.—Condition of mare similar. There was still no evacuation of fæces and the mare was getting weaker. I made another rectal examination, but was unable to gain any further information. I tried, in particular, to palpate the ileum but,although the small intestine could be felt, I was unable to recognise any impactions there. The cæcum could still be felt, firm and unyielding. Pulse was much feebler and heart weakness was shown, the heart beat being very distinctly felt in placing the hand on the chest behind left elbow. I decided to try the effect of arecoline, and administered hypodermically 1 gr. arecoline and 1 gr. strychnine. The result was an increase of pain with the usual symptoms of salivation.

Eighth Day.—Mucous membrane of the eye showed a yellowish tinge, and the odour from the mouth was rather more fœtid, otherwise no change. As the owner was getting very impatient, I had to satisfy him by adopting more energetic treatment, and administered a dose of physic containing aloe, ℥v. ; calomel, ℥i. I also repeated enema and gave hypodermically 1 gr. strychnine.

Ninth Day. The mare appeared very much worse. The pulse rate was over 80 to the minute and temperature 101°. The most noticeable symptom, however, and one which the owner noticed early in the morning, was a thumping noise which I found due to spasm of the diaphragm. I counted the beats and they numbered about 70 to the minute. Respirations were also accelerated, and there was a still more fœtid odour from the mouth.

I again passed the stomach tube and administered: sodium chloride 1 lb. ; formalin, ℥i. ; and water, 2 gallons.

A considerable amount of gas was eructated per tube. This time, after injecting about one-third of the solution, I detached pump and syphoned off over a gallon of fluid. In this way I pumped in the 2 gallons of saline and syphoned it all off again, but the return flow collected more than 4 gallons. The returned fluid was of a deep yellowish colour, and had practically no solid material mixed with it.

I now felt certain that there was an obstruction or impaction of the small bowel as well as of the cæcum. The mare received no further treatment that day, and I was doubtful whether I should find her alive on the morrow.

Tenth Day.—When I saw her I found the mare much better. The spasm of the diaphragm had stopped after lasting somewhere between 18 to 24 hours. The patient was still hanging her head and looking dull, but pulse rate was normal though feeble, and the breath had a much sweeter smell. I now told the owner that nothing much further could be done, but we should have to wait and see whether the physic would act.

Eleventh Day.—The mare was not seen.

Twelfth Day.—I found that two small quantities of fæces had been passed, the first lot early in the morning was black and hard, the second clay-coloured, but a little softer. Peristalic sounds were more distinct and longer. Mare still very dull and was not looking for food. I told the owner to try her with a little milk or gruel or a mouthful or two of bran in a mash.

Fourteenth Day.—I saw the mare again. The bowels were moving more freely and she seemed a little brighter. There was no purging, and the fæces were still of a light clay-coloured appearance. Appetite was very poor and practically all that she had eaten was a little grass (not easily got in December) pulled for her by the owner. The mare was now very weak, and as she had not lain down since the beginning of her illness, I hesitated whether to put her in slings, but in the end decided to let her take her chance.

I prescribed six doses of : T. nucis. vom. ℥i. ; Liq. ext. gent. ℥i. ; T. ginger ℥ii. ; Ac. nitro. hydroch ℥ii. A dose to be given in a gill of water night and morning.

Sixteenth Day.—The mare's appetite was still in abeyance but she would eat a little grass. Peristaltic movement appeared normal and the colour of the fæces passed was rather darker and the odour from the mouth was again sour. I passed the stomach tube and gave the usual saline and formalin solution along with 1 gr. of strychnine hypodermically. The draughts were also continued with.

Eighteenth Day.—I did not see the mare again, but was informed that she was now doing very well. The appetite had returned and she seemed bright and lively.

I did see her, however, about a week later, when she seemed about as fit as ever, and it was surprising how little condition she had lost.

I have brought this case forward as one likely to promote a good discussion and there are several points on which I should like to have the views of the members.

(i.) In my opinion there was an impaction of the small intestine, probably the ileum, although I was unable to diagnose it rectally, along with an impacted cæcum.

(ii.) While stimulants appear to be the acknowledged remedy for impaction, according to some of the best authorities, I am doubtful whether they or the physic helped to bring about a cure in this case. To my mind, most cases of impaction are due to or associated with a catarrhal or inflamed condition of the bowels, and I consider that purgatives or even strong stimulants may increase the catarrh. Certainly I have not

always had good results after administering large doses of amm. carb. and nux. vomica in cases of impaction.

(iii.) I should like to hear opinions as to the cause of spasm of the diaphragm. Was it a reflex condition resulting from the catarrh or irritation of the mucous membranes of the small bowel and stomach causing impulses to be transmitted by the nerves to the diaphragm, or was it a reflex due to pressure of the stomach and bowel distended with fluid and gas pressing in the diaphragm? The return flow of fluid on the ninth day per stomach tube rather indicated a distended condition. During the few years I have been in practice, I can recall about a dozen cases of spasm of diaphragm, so that I do not look upon it as a rare condition. Two of the cases I met with were associated with a rupture of the stomach. The saline injections were, I think, beneficial. They exerted an antiseptic action in the bowel contents, and it was noticeable how the bad breath smell in the mouth would sweeten after their administration.

(iv.) Lastly, did the spasm of diaphragm help to relieve the impacted cæcum?

Mr. A.W. Noel-Pillers gave an account of "Liver Fluke in Wild Rabbits."

Mr. H. T. Matthews, B.V.Sc., cited a case of "Biliary Calculi in the Horse," and exhibited specimen.

Discussion.

Mr. Holroyd said he was sure that the cases brought up that afternoon were most interesting to everybody. Mr. Lindsay's and Mr. Curbishley's cases especially interested him very much. He had not yet carried out an amputation of the claw, and thought that very often they got more than one claw at once affected and he would feel more like taking the whole foot off. He agreed with Mr. Lindsay that it was a useful operation, although six weeks was rather a long time for a case to take to recover. He thought Mr. Curbishley's cases were most inetresting, although in the case of hydrops uteri, he did not mention the condition of the animal before he made the operation. Apparently the animal was in the early stages of the disease and there must be some difficulty in removing the cleansings.

Mr. Wilson, referring to Mr. Lindsay's case, said he had done one case of amputation. In that case the animal was given chloroform, the operation was performed, and the results were quite satisfactory. He thought it was best to give the animal chloroform in these cases. Referring to Mr. Curbishley's case of diabetes mellitus, Mr. Wilson said that very often in these cases the animals were in good condition; he had seen one that morning and it seemed all right. With reference to Mr. Walker's case of impaction of the bowels, he thought it would have been better if the stomach tube had been used earlier and larger doses given.

Captain Hopkin said he had had a case of hydrops uteri in a mare quite recently. She was 18 years old, and ten or eleven weeks off foaling. She was reported as being ill with colic, and after examination it was decided the condition was hydrops uteri. An abortion was brought about and about 30 gallons of fluid drawn off. The mare lived for a week and then died.

Mr. Harrison said he had a case of hydrops uteri similar to the case of Mr. Curbishley's in 1923. In this case the patient was an old cow of not much salvage value, and the owner said that Mr. Harrsion could do what he liked with her. The calf was taken away, and 35 gallons of fluid drawn off. The cow died.

Mr. Ackroyd said he had enjoyed listening to such a series of interesting cases. As the time was so short he would like to propose that the discussion be adjourned until another day. However, he was much interested in the case of amputation of the claw and the day the circular convening that meeting had been received, he was shown a case of amputation of the claw by an owner. He was asked to send dressings, which he did, and as far as he knew, the patient was getting on well. He thought it was a useful operation, when only one claw was affected, and the results proved it. He had enjoyed listening to Mr. Curbishley's case of hydrops uteri, although he had talked this matter over before with Mr. Curbishley, when they also discussed Campbell's article. Mr. Ackroyd cited a case of a cow with which he had to deal, and stated the symptoms were similar to those described by Mr. Curbishley. The cow was tapped, and recovered: he did not measure the amount of fluid drawn off. Some time later the cow "went off" again, and the owner had her killed. The thing could be done with profit and success, and that was the main point. Referring to Mr. Walker's case, he thought it was a remarkable case, and agreed with Mr. Wilson, that he thought some relief might have been given if the stomach tube had been used earlier.

The President (Mr. Allen) stated that perhaps the gentlemen who had contributed these cases might like to reply. He regretted the time for discussion was so very short.

Mr. Lindsay agreed that if more than one claw was affected an operation was not advisable. He wanted to emphasise the necessity for catching the condition early. He admitted that six weeks was rather a long time for recovery, but very often, when other methods were tried, the time of recovery was much longer than that; and the results not so good. By the method of amputation, the animal could be in milk and could be paying for herself. Mr. Lindsay said that he had been delighted with the results of all the amputations he had done.

Mr. Curbishley stated that he was glad to hear the members' views on his case of hydrops uteri, and he was firmly convinced that it was an operation that was called for. There was a psychological moment in all cases and sometimes one got good results, and sometimes bad, and he thought the operation was worth doing. The cow in question was of no salvage value and, judging from the result to the cow afterwards, he was sure it was worth it.

Mr. WALKER had observed there had not been a great deal of criticism on his paper. He noticed that one or two of the members had said that the stomach tube should have been used earlier.

In reply to that, he must say that on the second day he had difficulty in getting the tube down, but on the third day he succeeded fairly easily. He had not given arecoline lately, as he thought that was the cause of some cases of rupture of the bowels which he had had and he had adopted less energetic treatment. As he stated in his paper, he thought stimulating treatment might produce catarrh and that, if he had adopted stimulating treatment in the case reported, he would not have had such good results.

Mr. CURBISHLEY, referring to Mr. Walker's case, said that he read an article some time ago in which the writer said that a return flow tube should be used and fluid kept continually flowing through so long as it came back.

Mr. WHITEHEAD proposed a vote of thanks to the essayists, saying he had spent a most enjoyable afternoon, and he hoped other members would come forward with subjects for discussion. This was seconded by Captain Hopkin, and carried unanimously.

A vote of thanks to the President terminated the proceedings.

J. SPRUELL,
Hon. Secretary.

NOTES AND NEWS.

Diary of Events.

May 30th—Meeting of the North of England Division at Durham.

June 4th—R.C.V.S. Annual General Meeting. Earl Haig to attend to receive Diploma of Honorary Associate.

„ 10th—Meeting of the Lancashire Division at the Grand Hotel, Aytoun Street, Manchester.

„ 11th—Meeting of the Central Division at the Wellcome Research Laboratories, Weybridge.

„ 11th—Meeting of the Lincolnshire and District Division at Peterborough.

„ 19th—R.A.V.C. Annual Dinner, Hotel Cecil.

July 2nd—R.C.V.S. Annual Dinner, Hotel Victoria.

Members will have heard with deep regret of the death of the Earl of Ypres, who was so recently made an Honorary Associate of the College. He had promised to attend the Annual Dinner on July 2nd, and we were hoping that by then he would be quite recovered from his illness. *Dis aliter visum.* He was a great soldier and a great cavalry leader.

* * * *

Members should not delay to obtain tickets for the Annual Dinner of the College on July 2nd. We are to have the honour of the presence of Sir William Joynson Hicks, His Majesty's Secretary of State for Home Affairs, who has promised to propose the toast of the Royal College.

There will be also present the Director-General of the Army Medical Service (Sir William Leishman); Sir Francis Floud, Secretary of the Ministry of Agriculture; Sir D'Arcy Power; Lieut.-Colonel Sir Merrick Burrell; Sir Leonard Rogers; Sir Montague Sharpe, K.C.; Professor William Bullock, F.R.S.; Dr. R. W. Tuck; Mr. R. R. Robbins, the President of the Pharmaceutical Society, and others. We are specially pleased to announce that invitations from the President and Council have been accepted by Captain Adrian Jones, M.V.O., M.R.C.V.S., and Colonel W. B. Walters, C.B., F.R.C.V.S.

HEREFORD PRACTITIONER'S TRAGIC DEATH.

In the absence of a nurse who was caring for him in his illness, Mr. Francis Victor Steward, veterinary surgeon, of Hereford, a well-known hunting man in South Herefordshire, and amateur jockey, took prussic acid in the early hours of Saturday morning and died within five minutes. He was 42 years of age, and leaves a widow and two children. His parents, who recently celebrated their golden wedding, reside at Worcester, where his father is an alderman of the city council.

At the inquest held by the Hereford city coroner on Saturday the widow said that her husband joined the Army for a year at the commencement of the war and served in Flanders. When he desired to again sign on in 1916 he was medically rejected, as he was suffering from kidney disease. Since that time he had had recurring attacks of the disease, and collapsed on Tuesday on returning from a long motor journey. He was in agony until Thursday, having no sleep and being unable to swallow anything. On Thursday morning he persisted in going out, and returned in half an hour. That night she obtained a nurse, who about 1-30 on Saturday morning called her to her husband's bedroom and pointed out a note. Her hubsand was collapsed on a chair, and the nurse was practising artificial respiration. The doctor was summond, but her husband died in about five minutes.

The coroner, in returning a verdict of "Suicide whilst of unsound mind," expressed sympathy with the bereaved family.

PERSONAL.

A marriage has been arranged and will shortly take place between Mr. Charles Roberts, M.R.C.V.S., 8 Church Road, and Miss A. J. Walker, 7 Lonsdale Gardens, Tunbridge Wells.

CORRESPONDENCE.

Veterinary Meat Inspector.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—In *The Municipal Journal* of 16th inst., the City of Oxford advertise for a Veterinary Meat Inspector. to act as Veterinary Surgeon, Veterinary Inspector D.A.A., and Meat Inspector under the Public Health Meat Regulations. The successful candidate must possess the Meat Inspector's Certificate of the Royal Sanitary Institute, or qualify therefor. The salary offered is £350, rising to £450 per annum. On looking through this journal for some months back I find only one other case of a Veterinary Surgeon wanted under the above heading, but there are plenty of sanitary inspectors wanted, who must possess the Meat Inspector's Certificate of the above Institute, or a recognised Meat Inspector's Certificate. The salaries offered commence at, from £100 to £325, some with bonus in addition. One County Sanitary Inspector is offered a salary of £325, rising to £450 per annum.

A meat inspector wanted by the Government of Hong Kong is offered £320 per annum, plus £10 extra if he holds a certificate as Inspector of Nuisances, free of income tax, free quarters and uniform, with passage paid both ways. In an annual report of a sanitary inspector, quoted, he stated that he had detected thirty cases of cows with tuberculosis of the udder, among the herds in his district.

What is wrong with the course of meat inspection, taught at the Veterinary Colleges? The teachers of, and examiners in meat inspection, appointed by the R.C.V.S. are, I believe, the same men who teach and examine in meat inspection at the Royal Sanitary Institute, where a *recognised* meat inspector's certificate may be obtained. Is the possessor of the D.V.S.M. recognised as a meat inspector without a further certificate?

What is the position of a Veterinary Surgeon, who is called in consultation with a Meat Inspector?—Yours faithfully, R. BRYDEN, F.R.C.S.

London.

[The advertisement for the Oxford appointment was refused by the Editor, as the salary does not come within the scale agreed upon by this Association, and the appointment cannot be recommended to our members].

The Exportation of Horses.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—Quite unwittingly I seem to have aroused your correspondent, Miss (I think I am right in saying Miss?) A. M. F. Cole, to a degree of indignation altogether disproportionate to my offence. Apparently the trouble is that I did not find a certain pamphlet written by Miss Cole to be completely convincing, and even had the temerity to say so. If, as Miss Cole says, the pamphlet was a very ancient one, am I to be blamed for that? When I wrote to the R.S.P.C.A. for pamphlets I can assure Miss Cole that I did not stipulate for "very ancient ones."

I am invited to explain in what sense a plain record of facts seen can be "judicial." Of course it can never be anything else than just a plain record of facts seen—a sort of catalogue. But a recital of events is coloured by the mentality of the narrator. A story related by different witnesses, can wear queerly different aspects. Counsel for the defence and counsel for the prosecution have the same set of facts to deal with, but what variation appears in their setting forth. And so a record of facts, when illuminated by the light of Miss Cole's fervent personality, may appear just a little bit out of perspective.

Then I am charged with indulging in vague talk about "unthinking and sentimental people," "sentimental vapouring," and so on. I did not apply the words, "sentimental vapouring," to Miss Cole's pamphlet at all, but the sentence I quoted in my last letter certainly merits that description. Miss Cole's "quite obvious" explanation is not a bit obvious to me. So also does this merit it: "The black horse gave one mighty kick and knocked a plank out. Through the hole I could see him trembling." When I used the phrase "unthinking and sentimental," I had lifted it bodily out of a previous letter in your columns from another correspondent to remark on it that this agitation was not confined to the unthinking and sentimental.

Far from "rebutting all the evidence," my letter, I think, made it quite clear that if the traffic in horses involves cruelty then I am against it. Really, Sir, in this matter I am on the side of the angels, and I wonder that Miss Cole hasn't noticed it. But then, she is so cross.

I shall certainly follow Miss Cole's recommendation and ask the R.S.P.C.A. for a copy of her last pamphlet, for I am, as much in earnest about the business as your correspondent is herself. I hope I may find in it some elucidation of the statement that "in small butcheries round Antwerp some horses are killed with the knife." I have heard some rather grisly stories about this killing with the knife, and I do beg Miss Cole to forgive me if I press for fuller particulars.

One thing more, and I shall trespass on your space no further. In Miss Cole's pamphlet I read "When I enquired last, since the war, English horses were still being sold to the Veterinary College at Brusssels for vivisection, for the instruction of students. No anæsthetic is given." That Sir, is a grave charge, touching our profession very closely. If my last letter to you did "wind up with a fervent appeal for facts," is it to be wondered at? Have I really done anything so reprehensible to draw on my head such a deluge of wrath?—I am, yours faithfully, DONALD CAMPBELL.

7 Chapel Street,
Rutherglen,
23rd May, 1925.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—In a letter under the above heading published in your issue of May 23rd, Mr. G. Mayall writes: "*the aim of 'cruelty' societies should be to stop cruelty*, and not to try and stop trade. *If cruelty exists* on the French and Belgian sides it is clearly the duty of the French and Belgians to deal with it, either by legislation or education or both." (The italics are mine.) Mr. Mayall, as a gentleman whose professional aim must surely be to find the cause of the disease or injury of his patients, and so prevent the recurrence of the disease or injury, and not merely effect a temporary cure, will understand that it would be illogical for "cruelty" societies, knowing that cruelty exists in those countries to which our live horses are sent for butchery, to remain silent so long as that cruelty exists. Let Mr. Mayall inaugurate a campaign for legislation and education in France and Belgium—if he can—but in the meantime perhaps he will allow "cruelty" societies to carry out the aims for which he admits they exist.—Yours faithfully, E. G. FAIRHOLME, Captain, Chief Secretary.

Royal Society for the Prevention of Cruelty to Animals,
105 Jermyn Street,
London, S.W.1.
25th May, 1925.

Conflicting Veterinary Evidence.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—Might I, through your columns, express my appreciation of Mr. J. W. Rainey's letter anent the subject of Conflicting Veterinary Evidence. As a practitioner now resident outside the metropolitan area, I have no axe to grind, but from previous experience in North London Police Court, I unhesitatingly support Mr. Rainey's plea that the Council of the R.C.V.S. should look into a few cases of alleged cruelty, to be tried there. Mr. Pope's remarks are, unfortunately for our profession, not without foundation in fact, but to stigmatise a whole profession because one or two members will not agree with, perhaps, thirty or forty others, is neither fair to us as a profession, nor to those unfortunate Veterinary Surgeons whose clients request their attendance at North London Police Court. Writing on the subject will not help us much, so I would respectfully suggest to any member of the Council of the R.C.V.S. that he give notice of motion to the effect "the Council appoint a delegate to attend North London Police Court, and report as to the state of veterinary evidence there." I think that any morning at 10-30 would do, as there are nearly always a few cases of alleged cruelty, in the yard behind the Court.—Yours faithfully, D. T. REID.

19 West Street,
Dorking.
23rd May, 1925.

The Editor acknowledges the receipt of the following:

Report of a Meeting of the Lancashire Division, from Mr. J. Spruell, Hon. Secretary.

Report of Annual Meeting of the Eastern Counties Division, from Mr. W. Shipley, Hon. Secretary.

Communications from Professors A. C. Aggarwala and B. Gorton, and Messrs. H. J. Parkin and A. W. N. Pillars.

Report of the work of the Imperial Research Laboratory, Muktesar.

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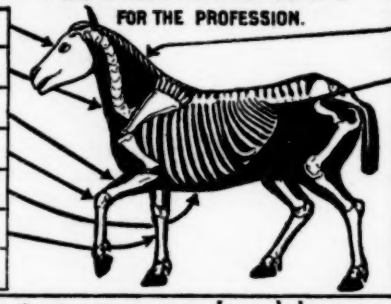

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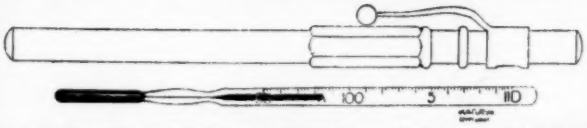

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